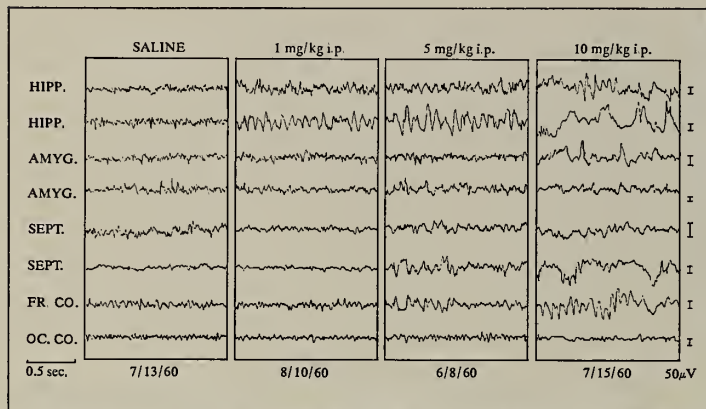


March/April 1970

HARVARD
MEDICAL
ALUMNI
bulletin



demonstrated in animal studies: selective action of Librium® (chlordiazepoxide HCl) on key areas of the brain's limbic system



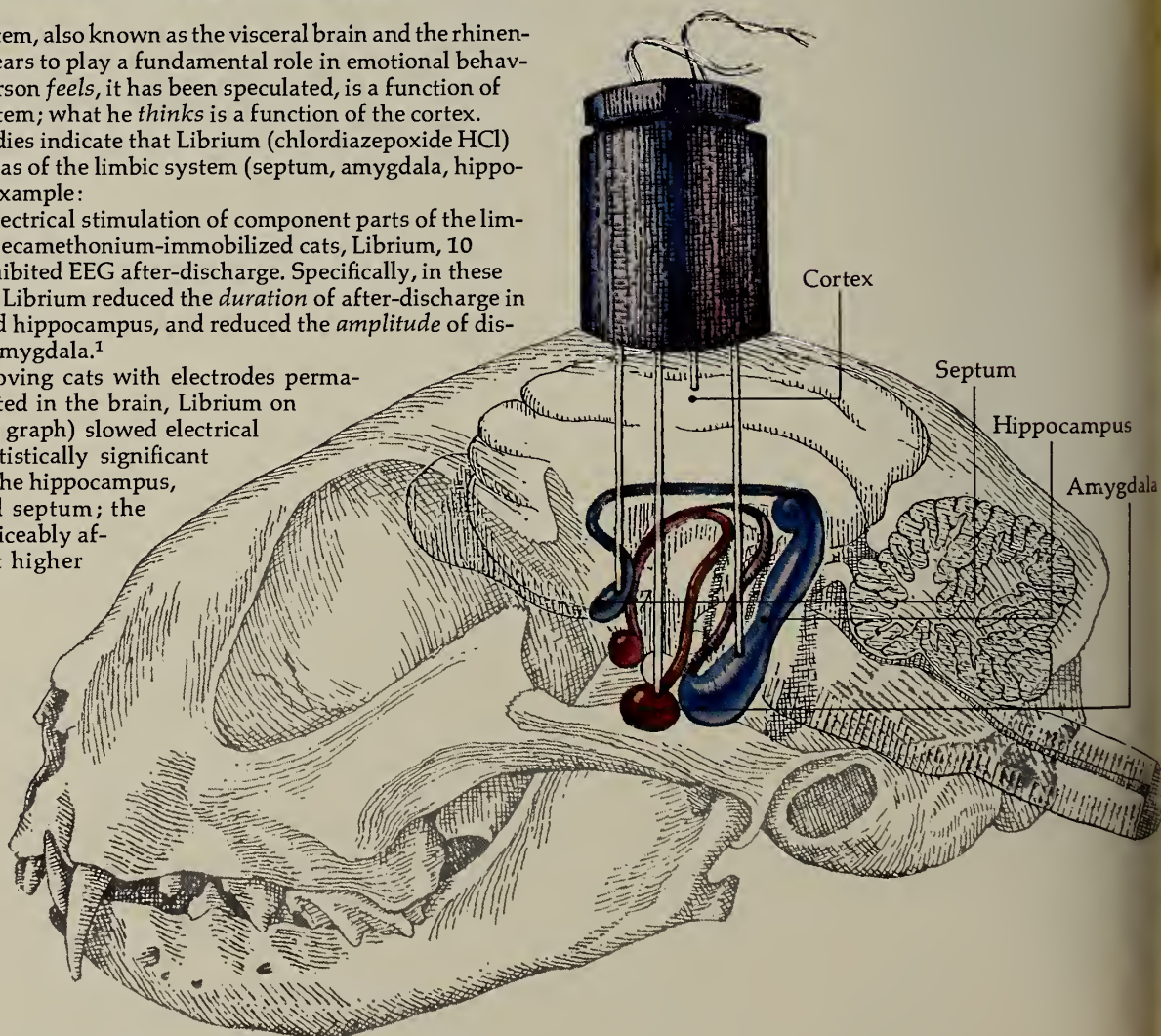
Spontaneous activity of EEG in unanesthetized cat with electrodes implanted in hippocampus, amygdala, septum, frontal cortex, and occipital cortex. Chlordiazepoxide HCl, 1 mg/kg i.p.: slowed the hippocampus and amygdala but induced no change in behavior. Chlordiazepoxide HCl, 5 mg/kg i.p.: slowed electrical activity in all leads including cortex; cat was sedated but awake. Chlordiazepoxide HCl, 10 mg/kg i.p.: caused slowing in all leads; cat was asleep. (Adapted from L. H. Sternbach, L. O. Randall, and S. R. Gustafson.²)



The limbic system, also known as the visceral brain and the rhinencephalon, appears to play a fundamental role in emotional behavior. What a person *feels*, it has been speculated, is a function of this limbic system; what he *thinks* is a function of the cortex. Bioelectric studies indicate that Librium (chlordiazepoxide HCl) acts on key areas of the limbic system (septum, amygdala, hippocampus). For example:

Following electrical stimulation of component parts of the limbic system in decamethonium-immobilized cats, Librium, 10 mg/kg i.v., inhibited EEG after-discharge. Specifically, in these animal studies Librium reduced the *duration* of after-discharge in the septum and hippocampus, and reduced the *amplitude* of discharge in the amygdala.¹

In freely moving cats with electrodes permanently implanted in the brain, Librium on low doses (see graph) slowed electrical activity at statistically significant levels only in the hippocampus, amygdala and septum; the cortex was noticeably affected only at higher doses.^{2,3}



References: 1. Schallek, W., and Kuehn, A.: *Proc. Soc. Exp. Biol. Med.*, 105:115, 1960. 2. Sternbach, L. H.; Randall, L. O., and Gustafson, S. R., in Gordon, M. J. (ed.): *Psychopharmacological Agents*, New York, Academic Press, 1964, vol. 1, pp. 161 ff. 3. Schallek, W.; Kuehn, A., and Jew, N.: *Ann. N. Y. Acad. Sci.*, 96:303, 1962.

Librium® (chlordiazepoxide HCl)

significant clinical advantages of Librium® (chlordiazepoxide HCl) confirmed in a wide range of conditions with an anxiety component



Today, Librium (chlordiazepoxide HCl) is well known as a dependable calming agent when anxiety is a significant component of the clinical profile. Although clinical performance cannot be extrapolated from experimental procedures and results, animal studies on Librium indicating a selective action on the limbic system may help explain the characteristic "Librium effect" in therapy, i.e., a calming influence without undue loss of mental acuity when the drug is given in proper maintenance dosage. Should the patient require extended antianxiety therapy, Librium is particularly suitable because its benefits are usually maintained without need for increased dosage.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated when anxiety, tension and apprehension are significant components of the clinical profile.

Contraindications: Patients with known hypersensitivity to the drug.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering to addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards.

Precautions: In the elderly and debilitated, and in children over six, limit to smallest effective dosage (initially 10 mg or less per day) to preclude ataxia or oversedation, increasing gradually as needed and tolerated. Not recommended in children under six. Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (e.g., excitement, stimulation and acute rage) have been reported in psychiatric patients and hyperactive aggressive children. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: Drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms,

increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally, making periodic blood counts and liver function tests advisable during protracted therapy

For relief of anxiety

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5-mg, 10-mg, 25-mg capsules

when tablets are preferred—

Libritabs® (chlordiazepoxide)

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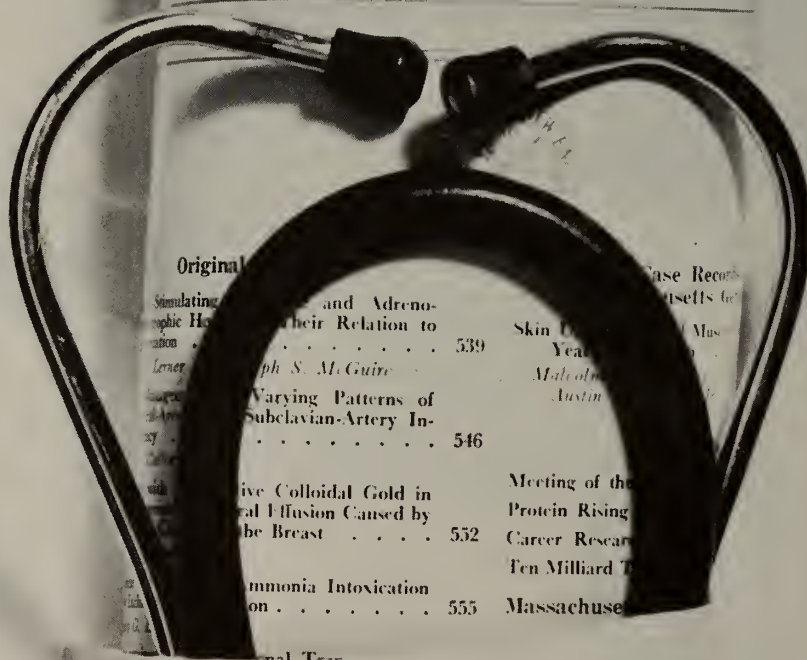


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HARVARD Medical School

1970 REUNIONS

Thursday, May 28th

1945 Dinner, Harvard Club, Harvard Hall

Friday, May 29th ALUMNI DAY

1920 Dinner, Harvard Club, Aescupalian Room

1925 Dinner, Children's Inn, 342 Longwood Avenue, Boston

1930 Dinner, Harvard Club, Massachusetts Room

***1935** Dinner, Holyoke Center Penthouse, 75 Mt. Auburn Street, Cambridge

1940 Dinner Dance, Wellesley Country Club, Wellesley

***1945** Dinner Dance, The Country Club, 191 Clyde Street, Brookline

1950 Dinner Dance, Sheraton Plaza Hotel

1955 Dinner Dance, State Street Bank Roof, 225 Franklin Street, Boston

1960 Dinner Dance, Hotel Sonesta, 5 Cambridge Parkway, Cambridge

1965 Cocktails, Countway Library, Minot Room

*By bus from Somerset Hotel

Saturday, May 30th

CLASS DAY

1920 Luncheon, Countway Library, Minot Room

1925 Outing and Lobsterbake, The James Baty's, Duxbury

****1930** Outing and Lobsterbake, The Warren Babson's, Annisquam

****1935** Outing and Lobsterbake, The Gordon Donaldson's, Lincoln

****1940** Outing and Lobsterbake, The Thomas Gephart's, West Newton

****1945** Outing and Lobsterbake, Castle Hill Foundation, Ipswich

§1950 Outing and Lobsterbake, Essex County Club, Manchester

†1955 Outing and Lobsterbake, The Emerson Inn, Rockport

1960 Outing and Lobsterbake. Place to be announced

1965 Outing and Barbecue, The Earle Chapman's Brookline

**By bus from Somerset Hotel

§By bus from Sheraton Plaza Hotel

†By bus from Sheraton Boston Hotel

ALUMNI PROGRAM

May 28, 29 & 30, 1970

Alumni Day — Friday, May 29, 1970

MEDICAL SCHOOL GOVERNANCE

8:00 a.m.-2:00 p.m.

REGISTRATION

Building A

MORNING PROGRAM

9:45 a.m.

Welcome

Longwood Quadrangle

Langdon Parsons '27, Director of Alumni Relations

Report to the Alumni

James M. Faulkner '24, President, Alumni Association

10:00 a.m.

Isaac M. Taylor '45, Moderator

Speakers:

Thomas H. Hunter '40, Vice Chancellor for Medical Affairs
University of Virginia Medical School

F. Sargent Cheever '36, Vice Chancellor, Health Professions
University of Pittsburgh School of Medicine

Isaac M. Taylor '45, Dean
University of North Carolina School of Medicine

Robert H. Ebert, Dean
Harvard Medical School

12:00 noon

Presentation of the 25th Reunion Gift

12:15 p.m.

LUNCHEON ON THE LONGWOOD QUADRANGLE

AFTERNOON PROGRAM

2:00 p.m.

Annual Business Meeting

Longwood Quadrangle

2:15 p.m.

F. Sargent Cheever '36, Moderator

Panel discussion by morning speakers, HMS faculty and students.

Topics for discussion include:

Student participation — how practical?

To what extent have the faculty placed their departmental interests above those of the School?

To what extent should the School become involved in Community Service?

How much influence should the School have in the affairs of the Associated Teaching Hospitals?

How effective have the changes in the curriculum been in satisfying the needs of faculty and students?

Should there be changes in admission policy? Can the student function effectively on such a committee?

Where should disciplinary powers rest?

What role should the Alumni play in the affairs of the School?

4:00 p.m.

Class Photographs

6:00 p.m.

CLASS REUNION DINNERS

1920, 1925, 1930, 1935, 1940, 1945, 1950, 1955, 1960, 1965

HARVARD MEDICAL Alumni bulletin

vol. 44 MARCH-April 1970 NO. 4

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*The opinions of contributors to the Bulletin do not
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THE immediate, overwhelming impression I had on seeing the first clear picture of the earth, taken by the Apollo 8 astronauts, was the insignificance, the isolation, the loneliness of our planet in the immensity of space. I looked long at that picture of the streaked white and blue sphere, becoming increasingly awe-struck by the thought of all that has been going on for so many hundreds of millions of years on this speck of matter. Every manifestation of the phenomenon called life, beginning with the dim record found in ancient rocks and evolving through uncountable variations up to the myriad living forms of today, originated on the surface of this small globe, powered by the thermonuclear fires of one star. And a more terrifying thought came to me. This amazing phenomenon, which began as a result of the most improbable coincidence, could be wiped out by inherent failures of the phenomenon itself. The destruction might occur catastrophically, or it might occur insidiously over a longer period of time through mismanagement by the most sophisticated product of that evolution — man himself.

But I realized too, with ironic satisfaction, that however it might happen, the planet would continue to spin in a predetermined orbit around its star, unchanged in outward appearance. Tragic only to the conscious product of the experiment, the event would go unnoticed in the totality of the universe. The experiment of life — the only one we know about — is answerable solely to and for itself. Self-contained, self-generating, and potentially self-destroying, its future for all time is contained in the basic genetic substance of all living matter. If the genetic material is destroyed, life ceases.

Without doubt the most remarkable endowment of life is intelligence. It gives to man, in whom it has attained its highest development, unique powers of self-examination and self-control. He could if he wished, within limitations, direct his own future. The difficulty is not so much with knowledge, which he

is continuously storing at a prodigious rate, as with understanding and wisdom. Wisdom is what gives men the ability to judge the best course of action in terms of their own self-interest. The farther into the future they are able to project the determination of self-interest, the wiser they are.

The greatest benefit that could come from the space program would be a deeper understanding of the responsibility man bears for the continuation of life on his home planet. The photographs of the earth from outer space give a new perspective on his world, from which comes the knowledge that the health and ultimate survival of the human race depend entirely on the restraint and wisdom he exercises in the exploitation of the finite resources of the earth, and that no resource from outside will be available to repair the damage done by his reckless acts.

MAN has arrived at a crossroad in his destiny by the diligent application of knowledge to the manipulation of his environment. One direction leads surely to oblivion for himself and for many, if not all, of his fellow passengers on the planet. Others lead perhaps to better solutions but by no easy routes. All ways will be beset by difficulty, by hard choices, and by the severest tests of his intelligence and good sense. The direction that seems to promise the greatest rewards, the surest fulfillment of the hopes and aspirations of his troubled and inquiring spirit, and of a distant and ultimate happiness, is a course of least arrogance towards his living companions; a course even less negative than the absence of superiority — a course of humble respect for life, a sympathy that sustains a recognition of the essential interdependence of all living things.

TO CONSERVE OUR NATURAL HERITAGE FOR THE GOOD OF MANKIND

by ELIOT F. PORTER '29

Since World War II, a technological revolution has been in progress, invading all levels of scientific endeavor from engineering to theoretical physics and biology. Even agricultural practice has undergone drastic revision with the introduction of cheaper chemical fertilizers and a whole spectrum of organic insecticides. The enormous economic growth engendered by this revolution raised the affluence of society and increased the rate of consumption, a further stimulus to the economy. An integral part of the rising spiral of consumption is a skyrocketing demand for power and water. Underlying and feeding this situation is the rapidly increasing population. These forces are not only changing the face of America, they are altering the quality of life.

People are crowding into larger and larger communities, partly because they prefer to live in close proximity to their neighbors, but also because crowded living is cheaper. Urban sprawl is pre-empting farm lands and open space near all centers of population. Despite warnings of impending social and economic disaster, the concentration of population goes on, fostered by real estate promoters. The demand for raw materials by industries is accelerating at a frightening pace. Forests are cut down to supply the lumber demanded in an ever increasing quantity, with little thought for the loss or for the future. Even the Forest Service, the official custodian of trees, is forced to collaborate in this mining of National Forests resources. Watersheds too steep for lumbering by conservative means are denuded, exposing them to erosion with all the consequent permanent land destruction, devastating floods, and stream pollution. To supply the increasing demands for fuel and power, coal companies re-

sort to more destructive methods of mining, and oil corporations, ignoring public warnings and even the adverse information they themselves have gathered — as the Santa Barbara oil disaster so dramatically illustrated — adamantly continue to drill wells in unstable geological formations. Utility companies are taking coastal areas for both nuclear and thermal power plants because ocean and river water is cheapest for cooling. They give little thought to the beauty they destroy, the recreational resources they curtail, or the ecological disruption they cause.

To accommodate the increasing millions of automobiles, every year thousands of acres of land are covered with concrete and asphalt for parking lots and freeways. The highway departments of many states have been given the power of eminent domain, which they exercise obdurately by constructing freeways through state parks and untrammelled wild areas for no better reason than to shorten by a few minutes the driving time from one place to another. Most people accept without protest these “improvements” which destroy much of the beauty of the places they were ostensibly intended to make more accessible.

THE EXPERIMENT OF LIFE IS ANSWERABLE SOLELY TO AND FOR ITSELF.

The National Park idea originally was to preserve in perpetuity, in their natural wild condition, places of outstanding beauty and scientific interest for the edification and enjoyment of all people. With the increasing wealth and mobility of Americans, the National Park Service has become a promotional agency that encourages visitors and offers ever more elaborate conveniences to the increasing millions of people who, desiring to escape from the pressures of industrial civilization, seek respite in the National Parks. Paradoxically, however, tourists prefer those parks in which the most comfortable, modern developments have been intro-

duced, where they can enjoy conditions most like those they left behind. They crowd into these parks by the thousands. They go, not to see the natural wonders for which the park was established, or to experience the joy of solitude in primeval nature, but to carry on all the complex activities of social intercourse available only in dense communities. Steven Roberts, writing for the *New York Times*, describes Yosemite today: “The constant roar in the background was not a waterfall, but traffic. Transistor radios blared forth the latest rock tunes. Parking was at a premium. Dozens of children clambered over the rocks at the base of Yosemite Falls. Campsites, pounded into dust by incessant use, were more crowded than a ghetto. Even in remote areas, campers were seldom out of sight of each other. The whole experience was something like visiting Disneyland on a Sunday.”

The demand for establishing permanent recreational facilities in wild areas is becoming almost irresistible. Government agencies, legislatures, and Congress are being importuned to authorize profit-motivated projects for vacationers on wild public lands except, for the present at least, on those areas specifically set aside

as wilderness. These include the construction of marinas, lodges, and ski resorts with, of course, all the necessary access roads. The usual defense of these projects is that they are democratic and conform to national tradition, whereas to deny such developments would show favoritism for the affluent who alone can afford the luxury of going into wilderness areas. Nothing could in fact, be farther from the truth. Anyone who has an interest in wildness can visit an established wilderness on foot or on horseback. The most he needs is a knapsack and bedroll, but the prices that prevail at lodges and resorts, though regulated by the government,



are prohibitive to all but the well-to-do. The marinas on the shores of Lake Mead and Lake Powell are facilities for the well-to-do boat owner. Before the damming of Glen Canyon, people with small rafts or canoes could make the trip through the canyon with perfect safety and at little expense. Today they can get nowhere without a motor boat.

The demands for the development of wilderness by interests like the Disney Enterprises and the manufacturers of expensive equipment (campers, boats, outboard motors, snowmobiles) are not going to diminish while the economy remains strong and the population continues to grow. And there will be attempts to subvert the intent of the Wilderness Act by allowing establishments to be constructed in wilderness lands.

THUS far I have mentioned only the changes in the environment arising from direct exploitation of material resources. These are the most obvious. However, there are less easily discernible, though no less objectionable, changes being wrought by more subtle and generally inadvertent causes; because they have widespread effects and are constantly at work on the environment, and go largely unrecognized, the injury they produce is the severest and most alarming. Adverse effects on the environment in this category are almost entirely the by-products of human activities. A good proportion of the harm done is an immediate consequence of industrial technology that disposes of waste products by dumping them into the atmosphere and water systems. A large number of poisonous substances are disposed of in this way without regard for the effect on the environment or the health of the human inhabitants. The air around industrial regions is being heavily polluted with all sorts of organic chemicals, combustion products of fuels, and solid materials, which create an opaque blanket of smog that may reduce visibility to night-

time conditions in cities and render the atmosphere unbreathable. Anyone who has driven on the New Jersey Turnpike near New York will have experienced this condition. Industry is well aware of the dangerous situation it creates, but disparages its significance because of the correction costs.

Among the most poisonous substances being dumped into the atmosphere are the oxides of sulfur and nitrogen. They kill plants, and animals, and people, too. Near the town of Sudbury, Ontario, where one of the largest nickel smelters in the world is located, thousands of acres of surrounding land have been completely denuded of vegetation, all life destroyed, and the rocks blackened to a semblance of lava by the waste gases. Recently a powerful coal company has brought suit against the State of Missouri to enjoin enforcement of regulations governing the maximum sulfur content of coal burned in the state. While this action was in process, a serious health hazard developed in St. Louis, where the high sulfur coal supplied by the company is the common fuel. Atmospheric inversion — a not uncommon occurrence over the city — caused a sudden rise of sulfur dioxide in the air to the highest concentrations on record. Prompt action by the city advising people to stay indoors may have prevented a repetition of the London disaster of more than a decade ago. In the northwest corner of New Mexico, a thermal power plant using locally mined low-grade coal is pouring hundreds of tons of fly ash into the atmosphere each day, more than the solid matter released over greater New York. The particles of ash are too fine to settle; they are spread by air currents for hundreds of miles into northern New Mexico and Arizona. The Rio Grande Valley is repeatedly subject to days of low visibility and the haze is reaching the Colorado River basin. This is happening in a region that once enjoyed the clearest air in the United States, and where visibility of well over 100 miles was usual. Utility officials, the

legislature, and the Governor of New Mexico have displayed astonishing indifference to a situation that is rapidly worsening. Here again, resistance to corrective measures is economic, but the loss in terms of a degraded environment and diminished quality of life is not taken seriously by those who cause the degradation.

The smog that is increasing everywhere is not due solely to industrial pollutants. A large share can be attributed to automobile exhaust. The automobile industry, typical of industry in general, resists invisible improvements in engine efficiency, but will spend millions on styling. No one can see the reduced fumes, but everyone notices a new strip of chromium. We are all familiar with the plight of Los Angeles where the smog, now known to be caused by the automobile, lasts for days. Millions of people suffer from sore throats and irritated eyes, not to mention more serious lung disease, caused by the products of incomplete combustion. Despite this, automobile manufacturers felt no responsibility to improve combustion efficiency until compelled by California law, and then, only in automobiles for sale in California.

On the eastern seaboard, smog from all causes is gradually invading the upper atmosphere where its presence is most dramatically evident from the air. A few years ago a layer only three thousand feet thick was observed from airplanes; now the layer is five thousand feet thick and extends from New York to Washington. If the present rate of increase continues, in a few years the layer will be over ten thousand feet thick and will cover all the eastern states.

AFAR more immediately serious debasement of the biotic environment is the incredible and continuing pollution of the lakes and river systems of the United States. Raw sewage, chemical-laden, oily wastes, garbage, solid trash, and even old automobile bodies are dumped into

our rivers, causing them to become nothing more than open sewers. Those responsible resist corrective measures by citing political and economic justification for these practices which have, as well, the sanction of tradition. For in America, a continent only recently occupied by Europeans, the pioneer concept of nature as a force to be subdued, and a resource to be exploited, still receives general acceptance. Rivers are regarded as rightful places for the disposal of the waste products and trash of civilization. Their beauty has gone unappreciated, their banks ravaged by inappropriate exploitation, their riparian life destroyed, and, when they can no longer be used as super disposals, they are dammed up. The Merrimac, on which Thoreau and his brother made their famous excursion more than a century ago, is so badly polluted that it is unsafe to ride on it in a motor boat. The raping of the rivers of the United States has gone so far that one is hard pressed to find a pure primeval stream anywhere within its boundaries.

Our lakes have fared no better. Lake Erie, long used as a cesspool, is now largely destroyed as a living lake: its oxygen has been absorbed by decay; its fish are dead; its beaches corrupted; and swimming is unsafe. As Lake Erie spirals towards the ultimate of offensive degradation, recovery becomes less possible. Lake Michigan is headed for the same fate unless the people of four states take strong action to prevent it. Lake Tahoe in the Sierra Nevada, which once held the clearest water in the world, is becoming green with algae from the chemically laden runoff of its mistreated shores.

The pollutants of our waterways destroy aquatic life and disrupt the ecology. Effects are appearing at great distances from the source of contamination. Killing aquatic insects with chemicals and suffocating water plants with oily wastes can destroy river fish for hundreds of miles. Birds are driven away for lack of food, but, since other similar areas

are already fully occupied by their kind, they have no place to go, and eventually perish from starvation and breeding failure. The total destruction of life brought about by industrial pollution is unknown because man is ecologically immature. Instead of anticipating damage and trying to forestall it, he waits until the damage is done and then, too late, attempts to correct it. And so, a constant slow attrition of wild life goes on unappreciated, until suddenly, to his surprise, man notices the loss, and regrets it. Man is not a self-sufficient animal; he needs the diversity of life to maintain his physical and mental health. If, in his enthusiasm for technical innovation and by over-confidence in his manipulative ingenuity, he extinguishes a considerable portion of this life, he will destroy himself.

than the target species — the desirable as well as the undesirable — and they kill also many higher animals. In 1962 Rachel Carson predicted the disasters that the unrestrained application of DDT and related chemicals would cause to animal life. She was ridiculed and condemned by manufacturers and users alike, but her pessimism has been vindicated by subsequent events. The advocates of chlorinated hydrocarbons always emphasize the alleged benefits but belittle or deny the undesirable effects. What are these disadvantages? At first they were not apparent, but it is now recognized that chlorinated hydrocarbons can have a devastating effect on life far distant from the place of application. The properties shared by these substances, which are most responsible for injury to life, are

Will man banish himself to oblivion by manipulating his environment?

EQUALLY harmful are the insidious effects caused by the common and increasing application of chemicals for biotic control. They fall into two general categories: those designed to destroy life — insecticides, fungicides, and herbicides; and those designed to stimulate it — fertilizers and growth stimulants.

After the war a new class of chemicals was developed. Known as chlorinated hydrocarbons, they are non-selective, highly toxic nerve poisons active in extreme dilution, which are used to eradicate noxious and disease-carrying insects, and to eliminate insect infestations of food crops and forests. On the whole the use of these artificial compounds has proved highly effective. Because they are new to the environment, most organisms have evolved no protection against them. The most common chemical in this class is DDT.

The danger from chlorinated hydrocarbon insecticides is their non-specificity; they kill much more

stability, insolubility in water, and fat solubility. Inertness renders them non-metabolically degradable while their solubilities render them difficult to eliminate and lead to concentration in the lipids and fats of the animal bodies they enter.

Among aquatic animals DDT and like substances enter the food chain at the lowest level by adsorption onto particles which settle to the bottom of lakes and ponds where they are eaten by invertebrates living in the mud. Bottom feeding fish ingest the DDT with their food, and, being unable to do anything else, deposit it in their fatty tissues. Carnivorous fish eat the bottom feeders and again deposit the DDT in body fats. At each stage the concentration in the fats goes up until it becomes many thousand times higher than it was at the lowest level. When birds at the top of the food chain, such as grebes and ospreys, eat the larger fish they concentrate the hydrocarbon still further. But fatty tissues are not like our attics and cellars where discarded

possessions are stored away and forgotten. Fats take part in the economy of the animal and when concentrations of poisonous substances reach a certain level they begin to produce insidious and sometimes lethal results. The primary lethal action of DDT as a nerve poison is explained by its inhibition of the enzyme associated with the transmission of nerve impulses. Another action recently discovered in birds is a blocking of the enzyme-hormone complex involved with steroid metabolism in the liver. Interruption of the production of steroids implicated in the oestrus cycle of the female results in sterility; but still more far reaching, interferes with calcium metabolism related to egg shell formation governed by the sex hormones. Female birds that have ingested more than an unknown limiting quantity of DDT become sterile and lay infertile eggs; they may also lay eggs with fragile shells that do not survive incubation, or eggs with no shells at all. The bald eagle, the peregrine falcon, the osprey, and the brown pelican are threatened with extinction in the United States because of DDT's interference with reproduction.

DDT sprayed from the air in insect control programs kills song birds. Following these applications many birds die quickly from nerve poisoning. In experimental areas they have been found dead on their nests. Dutch elm disease control programs destroy robins by the thousands. DDT is washed into the soil from the treated elms, and the robins die from eating earth worms that now contain high concentrations of the chemical.

Rachel Carson's gloomy prediction of a silent spring might well become a reality if the widespread spraying with DDT is not stopped. A prime obstacle to ending its use is bureaucratic inertia. For a long time after it became obvious that the fire ant eradication program in the Gulf states was not eradicating the fire ant, but was destroying wild life, it nevertheless continued, despite the vigorous objection of con-



Osprey

gressmen from the states involved. The same thing happened on a lower governmental level in Detroit in an attempt to eliminate the Japanese beetle. Eradication is a favorite term among entomologists in the Department of Agriculture, although no extermination of insects by chemical poisons has ever been successful.

The difficulty centers in the rate of reproduction of insects. Because they can produce many generations in one season, they can develop mutant strains resistant to the poisons. The phenomenon of developed resistance has occurred time and again with mosquitoes and various other insects. The immediate reaction to the appearance of resistant strains is to use more and greater concentrations of insecticide, which does no good, but does kill many higher forms of life. Those who defend the continued manufacture and use of DDT on the grounds that it has saved innumerable lives in malaria countries never mention the resistance factor. It would be interesting to know in how many anti-malarial programs a shift to other chemicals has been necessary.

More alarming consequences of the dissemination of chlorinated hydrocarbons throughout the environment are becoming apparent. Because of their low solubility in water, they went largely unnoticed before the harm they produce became evident.

Thus, such minute amounts as one part in a trillion kill brine shrimps. Therefore to monitor the dispersion of these toxins by sampling the environment could be misleading. A sounder method, which will give a more realistic picture of the situation, is to analyze animals at various levels of the food chain in which the hydrocarbons are concentrated. The sensitivity of fresh water fish to DDT has long been known, but not until recent years has an influence on marine fisheries been observed. DDT enters the oceans from the land, is picked up by phytoplankton and passed on up the food chain to the fishes among which it may eventually cause extensive die-offs. It also acts to decrease photosynthesis in the phytoplankton. More than half the world's photosynthesis is carried on by these single-celled algae, and any significant reduction in their activity could have profound and possibly irreversible effects on the equilibrium of the biosphere. Reduction of photosynthesis will lead to gradual loss of atmospheric oxygen with serious consequences to all animal life, including man.

Fertilizers washed into rivers and lakes are disrupting hydrological ecology. Nitrates in excessive amounts cause blooms of algae that interfere with the normal biota of lakes, leading to the disappearance of many aquatic types. They have probably contributed to the degradation of Lake Erie. These untoward results would largely be obviated if the practice of over-fertilization (like the practice of over-spraying with pesticides) was discouraged. In some mid-western communities nitrates in the runoff from farmland have contaminated water supplies, rendering them undrinkable.

If the damage being wrought on the environment by the various kinds of pollution, insecticides, and fertilizers is not soon arrested, the efforts of conservationists to preserve wilderness areas and wild life refuges will all be in vain. The preserved fragments of a once beautiful earth, will sink into total degeneration. To survive, man must become a wiser custodian of his heritage.

WHY, it may well be asked, is it to our interest to preserve part of the environment in its primeval condition? Why should we not exploit it all, eliminating that which has no apparent value? In the first place, purely pragmatically, we are not omniscient; we know not, nor are we able to imagine, what material use we may yet discover for some element of the environment that we now regard as useless. We know not, nor may we ever know, enough about the complexities of world ecology to foresee the long range consequences of manipulation, which might well turn out to our disadvantage. But a still more compelling biological reason exists to eschew the temptation to simplify our environment. No people are wise enough to forecast with certainty the evolutionary potential of the mass of life. Although we have succeeded in tracing the histories of some individual species from their bones and footprints, and although we can predict with some degree of certainty the future of a few others who seem to waver on the brink of extinction, we possess little insight into the destiny of the vast majority of living things. What intelligent being could have predicted, with only those clues available at the time, the splendid future that lay ahead for the ancestor of mammals — a shy, hairy, shrew-like animal who shared the Mesozoic swamps with the dinosaurs?

Evolution draws upon diversity. The abundance of life on this planet — its incredible variety — should make this statement self-evident. Out of the richness of life, new organisms are steadily appearing to take the place of those that failed. The readiness with which replacements occur depends on the supply of life forms that potentially can adapt to new conditions, to the conditions under which the extinguished organism failed to survive. The more available life there is, the more quickly the vacancy will be filled, and conversely, the simpler the biota, the longer the time required to fill the empty ecological niches. Many oceanic islands illustrate this phe-

nomenon of a simplified biota perpetuating itself. What happens on a limited scale in isolated areas, however, has little influence on the totality of world life, but when man, with his power for destruction, attacks the whole biota in the name of greater efficiency, in exploitation of his assumed interests, he runs the risk of carrying the simplification of the ecosystem beyond the point of recovery. Enough variety may not survive to fill the gaps he has created. Through ignorance he could so reduce the genetic reservoir that an unexpected disaster to any of the remaining species might threaten his own survival.

A more compelling argument for all who accept a longer view of man's dominance on this isolated planet is that the quality of his tenure, so breath-takingly short, is inextricably interwoven with the lives of all his companions. He cannot do without them. No doubt man could dispense with a few pathogens, but the vast majority are essential to his welfare — to his psychic health. They enter into his life on many levels, enriching it, adding the variety without which living would become wearisome. It has been said that wildness is a luxury, a commodity man will be forced to dispense with as his occupancy of the earth approaches saturation. If this hap-

pens, he is finished. Wilderness must be preserved; it is a spiritual necessity. Even though few may visit wilderness areas they remain an open back door, a safety valve for those who never enter them, but know they are there as a way out in case the going gets too rough.

With wilderness gone, paved over, plowed under, deforested, leveled by bulldozers, built on, and sterilized; with recreation mechanized, controlled, regimented, and socialized; with all this imposed on an increasing need to escape the dull monotony of their self-imposed prisons, men will cease to lead biologically integrated lives. They will have destroyed the total living community in which participation is so essential for their well being. Under these conditions meaning will go out of life, inspiration and joy will fade away, people will become apathetic, listless, and, if observations on other animals have any significance for humans, sexual drives will wither. Then the birth rate will fall. Perhaps we see here nature's way, short of war or famine, of solving the population crisis, but, in the light of man's manifest intelligence, even without much wisdom to go with it, I find it difficult to accept such a solution. Before it is too late men should, men must, awake to the hard facts of their inescapable self-interest.



Arctic Tern

AT the foundation of these awesome problems facing mankind is the elementary one of numbers — how many people are consistent with health and survival of the species? Animals are not good at this kind of self-appraisal. No species has ever voluntarily brought its multiplication to a halt, but then there has never before existed a creature endowed with a brain capable of self-examination. Perhaps at last the miracle of self-limitation will take place. Unless man stops the runaway population growth and stabilizes his numbers at a level compatible with the continued existence of a maximum diversity of his earthly companions, all efforts to prevent degradation of the environment by pollution, by dissemination of chemicals, by misuse of land, by improvident mining of resources are doomed to failure. When these efforts fail, the reservation of national parks, wildernesses, and wild life preserves

Great Smoky Mountains



WILDERNESS IS A SPIRITUAL NECESSITY.

becomes meaningless, because they will protect and preserve nothing.

The worldwide spurt in human population, which has been viewed with growing misgivings by conservationist, ecologist, demographer, and politician, is a direct consequence of the phenomenal advances in public health and medical science in this century. Since 1900 technological breakthroughs in medicine that have occurred have so drastically reduced the death rate in all the densely populated countries of the world that their populations have doubled and redoubled in this time. During the same period the productivity of the world has not kept pace with the growing numbers of people. Today a food deficit creates starvation conditions for millions in underdeveloped countries where violence, riots, and mindless slaughter are be-

coming ever more frequent phenomena. Some ecologists predict that widespread famines will overwhelm densely populated regions of the world like India and South America within the next decade — and the time is probably too late to prevent them. Death by starvation is nature's way of re-establishing a balance between populations and food supplies, but it is not an orderly way; disruption of whole cultures and chaos are the by-products. A heroic attempt is in order to ameliorate the situation by lowering the birth rate to correspond with or fall below the death rate. Science, particularly medical science, supported by governments, must devise a program to realize a stable population. William Vogt in *Road to Survival* in 1948 persuasively describes how modern medicine, blind to long term effects, has successfully reduced the death rate from disease in the most overcrowded countries without devoting comparable effort to birth control. The result has been a net increase in misery and hopelessness.

If doctors feel a moral obligation under the Aesculapian code to alleviate human suffering, but, in the process of saving lives, foster more suffering by raising the population density beyond the carrying capacity of available resources — and I mean intangible as well as tangible resources — then they must accept an equal moral responsibility for preventing children from being born into misery. To prevent death from smallpox, malaria, cholera, and innumerable other diseases with no greater promise than a life of despair, and ultimate death from famine, is no fulfillment of the pledge. Better to die, or not to have been born, than be kept alive for such a fate. The prospect for hundreds of millions of children yet to be born in this century is no less desperate, and unless the trend is reversed, the obligation of the medical profession to work for a reduction of the birth rate is clear.



THE SIERRA CLUB: AND THE IDEA WHOSE TIME HAS COME

LEGISLATION by CHAINSAW?

by EDGAR A. WAYBURN '30

THIS provocative question recently headlined a full-page advertisement that ran in major newspapers from New York to San Francisco. The ad showed a dramatic picture of a redwood forest being stripped and scraped bare by modern logging. The text explained how continued cutting was deciding the boundaries of the proposed Redwood National Park, even while Congress was deliberating where those boundaries should be. An urgent plea for action to rescue the proposed park was made, and there were coupons for readers to clip and mail to Congress, the President, and the Georgia Pacific Lumber Company.

It was a very unusual ad. The product being sold was a national park. Instead of money, readers were asked to spend time, thought and action. The ad was run not for profit

but for the public good. And while it was primarily a plea to save a superb small piece of the American scene, it was also a challenge to the time-honored American tradition of looking at trees as so many board-feet of lumber.

Who would run such an ad? And why?

The advertiser was the Sierra Club, one of the country's most venerable conservation organizations and clearly its most unconventional. The ad was only one of a series aimed at awakening the American people to a number of conservation crises around them; along with the redwoods, the subjects included the Grand Canyon of the Colorado River, Washington's North Cascades, San Francisco's great bay — all irreplaceable scenic treasures threatened with destruction by incompatible

development. Equally important, the series focused on the underlying and basic problems of wise land-use, of preserving open space, and of maintaining a livable as well as a beautiful environment.

Advertising is just one facet of the Sierra Club's unique volunteer-directed program. In 1970, the Sierra Club is the country's largest activist conservation organization, with a membership approaching 90,000. It is a publishing company, winner of many coveted book awards; it is pioneering in the development of conservation law, engaged in some fifty legal actions; it has the largest outing program of any outdoor organization. It is a club of hikers, climbers, skiers, river-runners, but most of all, of dedicated and enlightened volunteer conservationists. Although the club has been

called too bold and too militant, and has had its ears cuffed by the Internal Revenue Service for "influencing legislation," it is probably the single most effective broad conservation organization on earth. And the last year has seen an enormous awakening of the public to the importance of the issues the Club has fought to define and to defend.

As one octogenarian member asked recently: "What would John Muir have thought of it all?"

Muir probably would have been delighted. His was a small world; 90,000 people was the combined population of three Bay Area counties when he became a founding member and first president of the Sierra Club in 1892. But he was a man who knew an environmental crisis when he saw one, and he used every means at hand to meet it. From the beginning, he considered the Sierra Club a unique vehicle for action — conventional or unconventional as the case demanded.

Born in Scotland, John Muir, naturalist and explorer, came to the United States, grew up in Wisconsin and then wandered westward. In 1868, he walked from San Francisco to Yosemite to take a job as a sheepherder (en route, he waded for dozens of miles through a sea of wild flowers in the San Joaquin valley). When he saw the Sierra Nevada, the Range of Light, he lost his heart to it. For the rest of his life he was a passionate advocate for this magnificent part of his environment which he saw threatened by neglect and misuse. He wrote about the Sierra, stumped the legislative halls to save a part of the range in a national park, and was a prime mover in forming the fighting organization which bore their name, and which would ever be associated with him.

There were 182 founding members of the Sierra Club, physicians, lawyers, professors, artists, even a University president (David Starr Jordan). Each in his own way was as involved as John Muir: each contributed his special talent and sphere of influence to further the purpose of the club.

Beautiful places ARE important

FOR THEIR OWN SAKE.



This Ansel Adams photograph of aspens in northern New Mexico is part of the Sierra Club's letterhead.



THE original stated purpose was "To explore, enjoy and render accessible the Sierra Nevada." Hardly before the ink was dry on the By-Laws, the club was on its way to becoming the *enfant terrible* of California's earliest conservation efforts. Even then, the membership recognized a broad spectrum of critical problems, and took action accordingly. In 1892, it was pushing (successfully) for the establishment of Forest Reserves, later to become our National Forests, and before long it was urging formation of a National Park Service. It fought for the coastal redwoods (*Sequoia sempervirens*) and the Sierra big trees (*Sequoiadendron gigantea*), for Washington's Mt. Rainier National Park, and for Montana's Glacier National Park, even while it battled to enlarge Yosemite National Park and to save Hetch-Hetchy valley — the "second Yosemite" — from being dammed to supply San Francisco with water the city could have gotten elsewhere.

Formed for action, the club lost no time in developing effective tools. From the beginning, it assumed the multi-faceted character that would make it unique among its brethren conservation organizations. The Sierra Nevada, the redwoods, Mt. Rainier National Park — all needed to be better and more widely understood: a publications program was initiated with the semi-annual *Sierra Club Bulletin*, published first in 1893 and continuously since then. This journal went far beyond mountaineering to educate and to inform its readers on current conservation issues; it still does. People needed to see the mountains and experience their beauty first hand to love and understand them: in 1901 an outing program was launched to send travelers into the unknown country of the Sierra Nevada. Perhaps the most colorful safaris in mountaineering history, the club's early High Trips moved more than 200 people for hundreds of miles through the wilderness, carrying enormous stoves (with stove pipes), a professional chef, and pantalooned ladies who often out-climbed the gentlemen.

Following a fire, which destroyed its early records and library, the Sierra Club moved into the Mills Building in 1903 where its headquarters have remained ever since. Here, a new library was built that has grown into perhaps the finest single conservation and mountaineering collection in the country. Here, also, Will Colby, one of the great conservationists of all time and secretary of the club for 34 years, kept the membership records in a shoebox until the cards spilled over. When John Muir died in 1914, broken-hearted over the loss of Hetch-Hetchy, 1,797 members mourned his passing. In its first 22 years, the Sierra Club had grown nearly tenfold.

Park. They crowned their conservation efforts with a successful campaign for King's Canyon National Park, which was dedicated in 1940.

In World War II one-third of the club's members served in the armed forces. Along with the rest of the military they traveled far both in this country and abroad, and when they returned home they saw a change in the lands they had lived in and loved. The technological age had burst upon California to transform the landscape, and Sierra Club members were among the first to appreciate the threats to nature.

In the early '50's, they were 7,000 strong; the club had spawned seven chapters. But hardly anybody outside of California had heard of the

integrity of the National Park System. If Dinosaur could be violated for the economic use of water, what would stop the violation of other parks for logging, hunting, mining, freeways?

The Sierra Club put its traditional tools to work to defend the rights of the parks and the public at large. The *Bulletin* carried feature articles on Dinosaur, exploring all aspects of the problem. The Outing Committee scheduled trips into the area so that people could see, first hand, what was involved. And, in tune with the times, new tools were developed. The club produced two documentary films for broad distribution. It assisted in preparation of *This is Dinosaur*, a handsome A.A. Knopf publication. David Brower spoke at the

MAN ASSUMES HE IS IMMUNE

TO THE CATASTROPHES HE INFLECTS UPON THE EARTH.

JOHN Muir left a legacy of exceptional leadership. He also left the big idea — not peculiarly his own but articulated by him with eloquence and grace for the Sierra Club — that the beautiful places of the earth were important for their own sake and important to all people. He had already challenged the old order to prove this idea, and developed an extraordinarily able and viable organization in the process. His successors would be responsive to the immediate conservation needs of their time, and would look ahead to the greater needs of the future.

Through two world wars and a major depression, the club was to grow more slowly, but steadily. Members continued to hike, bag peaks, build trails, map the Sierra Nevada, and plant fish in its crystal streams. They saw the National Park Service established in 1916; they worked with the Save-the Redwoods League in early (and unsuccessful) attempts to gain a Redwood National Park; and they helped establish California's State Park System, as well as Olympic National

Sierra Club. In 1952, that was to change.

That year, three major events occurred within the club. The By-Laws were amended: no longer was the club's purpose "to render accessible" but "to protect" the Sierra Nevada and now "other scenic resources of the United States and its forests, waters, wildlife and wilderness." The Sierra Club was moving into the national arena.

Becoming national, it initiated employment of a professional staff. The first executive director, David R. Brower, was to remain in that capacity for 17 years. The present executive director is Michael McCloskey, Harvard AB (1956).

Implementing the club's broader objectives, the Board of Directors decided to go all out in the fight to save Dinosaur National Monument. A small piece of Utah real estate that few Sierra Club members had heard of, much less visited, Dinosaur National Monument was threatened with flooding as part of the upper Colorado River project of the Bureau of Reclamation. At issue was the in-

Washington, D.C., hearings and with what he called his "ninth-grade" arithmetic, made the Bureau of Reclamation's figures look foolish. Members, now joining from all over the country, bombarded Congress with protests against the Bureau's proposed action. The club co-operated with other conservation groups in marshalling a remarkable upsurge of public opinion to save Dinosaur.

After four years, victory came in 1956: Congress decreed that no project dams could invade the national park system. In retrospect, this was a monumental achievement, marking a turn in the tide of conservation events. A handful of dedicated citizens had alerted the country to a threat to our natural heritage; they had gained unexpected grassroots support; they had beaten down the entrenched bureaucrats, and Washington, D.C., would never be quite the same. The Sierra Club emerged as a young, vigorous and growing leader of a new national conservation effort. History had made a new Sierra Club, and the Sierra Club had made history.

SUCH was to be the club's pattern. The Dinosaur battle was just the beginning: as America's population began its postwar upswing, so did the conservation crises. When the developers moved into new areas, conflicting demands were made on the land. More and more people watched their favorite places disappear forever under concrete, saw beloved hills vanish beneath the treads of bulldozers, beheld their favorite streams dammed, diverted or made into open sewers. More and more people turned to the Sierra Club for strong, bold, enlightened leadership in helping to shape progress intelligently instead of being shaped helplessly by it. The needs and challenges were undreamed-of and enormous, but the club grew to meet them.

In 1960, the publishing program assumed a new direction and dimension with the printing of *This is the American Earth* by Ansel Adams and Nancy Newhall. A big book with stunning black and white photographs and a poetic and poignant text, it was the first of the Exhibit Format Series whose chief architect and editor was David Brower. Other volumes followed, using magnificent color to show people the beautiful places they might not otherwise see, repeating the timeless words of Thoreau and Muir, as well as adding contemporary facts and writers to tell why these places should be saved. Of exceptional beauty and quality themselves, these prize-winning books established the Sierra Club as a major member of the publishing world. More recently, paperback editions have put the Exhibit Format series — now 19 in number — into the hands of millions of people.

Along with books, new films were being produced. To get its message across the club was using other media, radio, TV, and the press, in addition to its advertising program in newspapers. Frequent press conferences were held as battles were won, or new ones initiated.

The most recent addition to the club's artillery has been the innovation of legal action. The club has filed suits challenging the land-use

decisions of various agencies when those decisions have been contrary to the public interest. Initial victories have been won in New York State (halting the construction of a large power plant complex at Storm King Mountain and the routing of the Hudson River Expressway); in Colorado (stopping the logging of land adjacent to a potential wilderness of the U.S. Forest Service); in California (halting the proposed Walt Disney development of Mineral King, a fragile and exceptionally beautiful valley in the Sequoia National Forest).

Staff, facilities and office space have been added to the San Francisco headquarters, and new offices have been opened in New York City, Washington, D.C., Seattle, Tucson, Los Angeles, and most recently, Alaska. Groups, and then chapters, have been organized through the midwest, the southeast, the Gulf states, Hawaii, and Alaska.

As the club has become more involved in the public arena and made more news, the rate of growth has equalled, and far surpassed, the upward spiral of its fledgling days: membership has been increasing at 25 to 30 percent a year. With up to

2,400 new applicants to be processed a month, and with thousands of members wanting to participate actively, the club has experienced some of the growth pains of any tremendously successful, swiftly expanding organization.

While many members join to support a going campaign, others bring new problems and projects of their own. As the Board of Directors, still dedicated volunteers who give enormously of their time and talents, has grappled with a staggering volume of complex demands for action from all corners of the country, a system of national conservation priorities has been developed. Chapters handle the local battles. Although often accused of being negative, the club has always had a strong positive program for action, as the priorities reflect. Programs include the completion of the National Park System, and broad support for the United States Forest Service and National Park Service as they classify their Wilderness under the provisions of the 1964 Wilderness Act, itself passed with strong help from the club. This support involves active field work by club members, frequent testimony at hearings and a close

Moraine Lake



working relation with the federal land administrators.

Other priority projects are more specific and more colorful. The fight for a Redwood National Park, concurrent with two other major efforts — to protect Grand Canyon from being dammed and to gain establishment of the North Cascades National Park — called forth the full resources of the club. Not won easily, and not won completely, these three landmark battles still ended with major first-round victories. (Neither the North Cascades Park nor the Redwood National Park is the size it should be, and Grand Canyon National Park has yet to be enlarged to take in the full Grand Canyon.) In the course of these battles, the country and many members of Congress began to understand how fast the environmental crises were crowding upon us and how much a great many people cared. Legislation in the 89th Congress reflected a new

Precipice Lake



awareness and a recognition that conservation, itself, was a growing political issue.

Most recent priorities of the club have been defined as Alaska (the last great relatively untouched wilderness of the United States and its most magnificent), Florida's Everglades, the Great Lakes, and the country's endangered estuaries. Topping the list, however, is a priority stated simply as Environmental Survival, which includes consideration of the problems of population, pesticides and pollution. It gives formal recognition to the fact that the club has greatly broadened its concept and concern in recent years. The club has become aware that, priorities or no, conservation issues can no longer be considered singly. Urban planning and the need for open space are as crucial as saving national parks, and each is a part of the total picture. Smog does not respect wilderness areas and sonic booms pursue moun-

taineers on the most remote peaks. All people need pure water; all are dependent upon a living ocean for the air they breathe. Man, who has developed his technology to the point where he can launch a space ship into orbit, is himself the inhabitant of a space ship with a finite carrying capacity, Earth. It is long past time for man to apply the scientific method to examining and understanding the problems of his overall environment, rather than to isolated bits and pieces of it.

IT is a sad fact that somewhere along the line, *homo sapiens* began to forget that he was a living creature, and, like other living creatures, dependent upon certain fundamental natural factors and laws. He incorporated into his religious tenets and much of his philosophy the idea that he was different, smarter, and in command. As the great psalmist stated it so lyrically addressing God in the Eighth Psalm:

“... thou hast made him a little
lower than the angels
And hast crowned him with glory
and honour . . .
Thou madest him to have dominion
over the works of thy hands;
Thou hast put all things under his
feet:
All sheep and oxen,
Yea, and the beasts of the field;
The fowl of the air, and the fish of
the sea,
And Whatsoever passeth through
the paths of the seas.”

For generations we have accepted this, using the land and its life and resources as we chose, without bothering to understand the true enormity of what we were doing. We have ravaged our forests, befouled our air and polluted our rivers and lakes, along with incidentally destroying dozens of species and threatening more. We have assumed that we were, somehow, outside the natural system and immune to these catastrophes that we were inflicting on the earth. But, of course, we are not. Recently Frank Fraser Darling



**WE MUST help TO SHAPE PROGRESS INTELLIGENTLY;
NOT BE SHAPED helplessly by it.**

put it well: "The exclusion of man from the hierarchy of nature . . . is to put him in the position of a bourgeois 'rentier' living off an economy but having no responsibility for it . . . I have expressed my doubts whether we shall have a long posterity if we continue as we are doing, living off the capital of the world's eco-system."

The Sierra Club has always been concerned with posterity: the parks and wilderness its members have fought to save have not been for themselves alone, but for their children and their children's children. Now there is a new urgency to our fight for those who will follow us. The club brings a formidable force to this most important battle of all. It has not only its 90,000-strong membership in 29 chapters, from Alaska to Florida to Hawaii, but also a great new grass-roots understanding of the environmental crisis

that is sweeping the country. The smart of smog in people's eyes and the bitter taste of chlorine in their water is only partially responsible for this new awakening; the club itself has played a major role in bringing it about. It has been pushing the pendulum of public concern into the area of total environmental awareness since the time of John Muir. Within the past year, the pendulum has taken off; groups dedicated in one way or another to environmental protection or to ecology are springing up everywhere. A new cause has swept through the schools and universities. Politicians everywhere have jumped onto the bandwagon of pollution, pesticides and population control. Ecology is no longer a subversive science but a popular cult.

The end of the 60's was a time of discovery and of much and eloquent talk of the endangered environment. We welcome this new understanding.

And as an activist organization we will get on with the job. From our long experience, we bring many things with which to meet the enormous challenges ahead; dedication, belief, and the expertise that comes after many encounters. We have known for some time that the world is in the grips of profound and radical change. Old customs, already questioned — as was the logging of the last virgin redwoods — must be re-examined and re-evaluated. Business as usual is a phrase of a past age. One member recently mused that we are a group of middle-class revolutionaries, testing old values as much as, and more thoughtfully than, the younger generation who increasingly are identifying with us. Called radical many times in the past, we expect to be called more so in the future. We think John Muir would have understood and approved.

"WILDERNESS WERE PARADISE ENOW"

The *Bulletin* is fortunate in having obtained for publication in this issue articles by two distinguished and articulate alumni, dedicated to the conservation of natural resources. Only within relatively recent years has the person of average intelligence in a country such as ours become alarmed over the way in which these resources are being wasted through ignorance and ruthless exploitation, poisoned by pollution of the environment, and consumed by the demands of a world population that is so alarmingly exceeding its natural limitations. Now it is being proclaimed from every side that the fate of mankind is hanging in the balance.

Eliot F. Porter, who graduated in 1929, taught biochemistry and bacteriology at the Medical School for ten years, then, an artist by preference, turned his talents to photography, gaining distinction for his studies of wildfowl and kindred subjects. Now a resident of Santa Fe and member of the Board of Directors of the Sierra Club, he published in 1962 *In Wildness Is the Preservation of the World*, the title and text taken from the writings of Henry David Thoreau. *The Place No One Knew* — *Glen Canyon on the Colorado* came in 1963, *Forever Wild* — *The Adirondacks*, and *Summer Island* in 1966, all superbly illustrated with his camera.

Edgar A. Wayburn, HMS 1930, an internist in San Francisco, is vice president of the Sierra Club and, in keeping with the goals of that organization, like Porter, an ardent conservationist.

Porter describes with dramatic effect the heedlessness with which man has been exploiting the planet that provided him with an environment suitable for his eventual development, although, according to one

wryly expressed conjecture, man really began as an artifact that impinged on the earth by chance, drifting here in rudimentary form out of the great void and here establishing himself, like rabbits in Australia or English sparrows in New England. And here, as his technical capacity developed, outstripping his social consciousness, he began destroying the environment that had favored him, depleting its minerals, denuding its forests, eroding its soil or burying it under blacktop, contaminating its air and its water, cutting down its very lebensraum in an apparently malevolent effort to get ahead of the conservationists before they could muster enough strength to rescue

him from his folly. Perhaps the fable of the Midas Touch needs to be re-read.

Thus Porter, the artist, naturalist and lover of the wilderness — to many thousands 'Paradise enow' — paints the picture of man's destructive talents, of which the average man seems only beginning to become aware, even as Wayburn describes the part that the 80-year old Sierra Club, with its 90,000 membership, is playing in promoting conservation, in battling pollution, and in warning against the onrushing dangers of the population explosion.

One hears of man's "right" to clean water and unpolluted air; to room in which to live; to security from those who would dispossess him. How these rights were established and by what power or authority they are maintained is another matter. It would seem that only his own determination can guarantee man the right to continue in possession of his priceless heritage.

ECO-ACTIVISM BECOMES AN ISSUE

Editor's Comment: The two most important activities of the Medical Alumni Association are to keep its members informed, to some degree through the *Bulletin*, of the affairs of the Medical School, and to carry on a program of scholarships for the benefit of the students. Efforts are accordingly being made to bring them into closer touch with the Association of which they are so soon to become members, and of which many have already been beneficiaries.

Each class has now a representative on the editorial board of the *Bulletin*, and Mr. Andrew C. Garling, a 2nd-year student taking the combined M.D.-M.P.A. course, was asked to submit the following literature — and pungent — editorial on eco-activism:

The latest environmental poster is a picture of the President, under the caption: "Get the Lead Out."

Mr. Nixon — determined to make the issue his own — has left "campus environmentalists" unimpressed. So have the automobile makers who have suddenly trumpeted plans to develop cars which run on unleaded gasoline. And so have oil companies who have bought space for full-page ads picturing landscapes their products have not yet befouled.

Their efforts are appallingly slight. The eco-activists know it and are stirring up feelings to do something about it. On a couple of campuses, students have held funerals for internal combustion engines. At San Jose State they buried an entire car. There may be a new type of demonstration at spring auto shows.

In the future, there may be different people and in different numbers standing in and around tunnel and highway tollbooths leading to our choking cities. Factory owners have watched such escalation with a nervousness that is entirely rational.

Environmentalists — and they include a growing number of activists on campuses and in communities — are showing frustration over the gulf between extravagant rhetoric and pitiful performances. General Motors, to take just one example, is proud of the \$8 million it spent last year on anti-pollution research and development. GM grosses that in a bit over three hours. GM spent about \$250 million to change its emblem from General Motors to “GM — A mark of excellence!” GM cars are responsible for about 30 percent of the total air pollution in the nation’s cities. But cars are only part of the problem.

Much of the legislation we already have is of dubious value. All new cars in the country must now conform to federal standards of emission control. It sounds good. While much has been made of emission-control “devices”, the general practice is simply to make engines that are more finely tuned. In conformance with the standards, they emit lower levels of hydrocarbons. They also emit more oxides of nitrogen, which

greatly increase health hazards. Because they are so delicately adjusted, engines of recent models get out of tune much more readily than the older ones, so that used cars end up belching more of everything at an earlier age. Used cars are *not* covered at all by federal standards. What to do about them is left entirely up to the states. No state has an adequate program for inspecting emissions from used cars.

To the economist, destruction of the environment is a problem of “externalities” — unless the firm is motivated by goodwill, concern for its image, or legal constraints, it is someone else’s headache. And none of these possibilities, to put it gently, inspires great trust among many persons, including students.

The environment, as those who know most about it constantly point out, is a life or death issue. We don’t have much time. And it seems quite clear that both businessmen and politicians, whatever their words, are unduly cautious about taking major steps. Business executives are now commenting on the price tag for anti-pollution measures: “We can’t be first — competition will get ahead.”

What is surprising is that both businessmen and politicians appear to regard the environment as a safe issue, one that everyone can agree on. They are wrong.

The reason is that they don’t have a clue as to what students and a lot of other citizens mean by saving the environment. The administration’s guru on the environmental issue seems to be Smokey the Bear. The State of the Union Message in January equated industrial polluters and individual litterbugs. We have a sanitation problem, it reasoned, and it will take a dose of good old American know-how to scrub it away.

Environmental Action is a conspiracy on the behalf of birds and squirrels all right, but it is a lot more. Those involved now have not “switched” issues. War being fought in cleaner air, or city kids being bitten by rats beside a beautified river is not where the eco-freaks are at. Environment will not co-opt or diffuse the issues articulated by the people resisting the draft, by the people in the barrios, by the people in the ghettos. Environmental concerns only underline more symptoms of the same problems.

The students who are active on environmental issues don’t see the mess as an oversight. It is, in their view, the natural result of a system — any system, whether capitalist, communist, or socialist — in which decisions are made by small groups of men who are virtually unaccountable to the community at large. (We needn’t stray out of the shadow of our own hospitals to realize this.)

As will become quite clear from the activities before, on, and after Earth Day — April 22 — people are looking for massive changes in how priorities are set both in government and industry. What is good for GM, it turns out, may be a little rough on the rest of us.

Laws without teeth, promised programs shortchanged of funds, or unchecked defense expenditure at the expense of research in health, won’t do. This doesn’t come as much news to people, whose political consciousness developed during the last administration, and it is hard to see how any successor can believe that they will stand for it.



ALONG THE PERIMETER

GOVERNANCE AT HMS

Since the cataclysmic events of last April, governance has been a much discussed topic throughout the University. No one knew exactly how Harvard was structured, and the Board of Overseers, the senior governing body, appointed a committee to examine the matter. Chaired by Judge Friendly, the committee met through the spring and summer and then recommended creation of a 35-man ad hoc University Committee on Governance. The committee is composed of faculty, students, alumni and Overseers.

Last fall Dean Ebert appointed an ad hoc committee whose charge was to consider the formation of a Harvard Medical School Committee on Governance. Members of the ad hoc committee are: Elkan R. Blout, chairman of the committee and Harkness Professor of Biological Chemistry; K. Frank Austen '54, professor of medicine; Sidney S. Lee, associate dean for hospital programs; Thomas B. Mackenzie '70; Kim J. Masters '72; and William V. McDermott '42, Cheever Professor of Surgery and head of the department of surgery at Boston City Hospital. Drs. Blout and McDermott and Mr. Mackenzie are members of the University Committee on Governance.

On January 13 Dr. Blout's committee held an open meeting to make known its proposals. A Committee on Governance composed of no more than 24 members was recommended. Certain factions within the medical community were dissatisfied with the recommendations and during the meeting, discussion centered on increasing house officer representation and including employees. The original proposal recommended one post-doctoral fellow *or* one house officer; employees were not represented.

Dr. Blout and his group took these suggestions under consideration and on February 18 presented their final recommendations. Members of the committee were unable to agree on employee representation and have left this decision to Dean Ebert.

The proposed committee would number 27 members (one house officer and two faculty representatives were added). Composition follows:

- Six medical and dental students. One is to be elected by each HMS class, and two are to be appointed by the Student-Faculty Committee.

- One graduate student. The graduate student should be elected through the Division of Medical Sciences and the new graduate student organization.

- One post-doctoral fellow, to be selected or elected.

- One house officer, to be selected by the Student-Faculty Committee.

- One member at large, to be nominated by the Center for Community Health and Medical Care.

- One representative from the Alumni Association, the president of the Alumni Council for the current year.

- One member of the administration.

- One overseer, preferably the chairman of the HMS Visiting Committee.

- Fourteen faculty representatives. There should be seven clinical and seven preclinical representatives. Of the seven clinical members, at least four should be senior faculty, and at least one should be from the part-time clinician-teacher group. Of the seven preclinical members, at least four should be tenure members of the faculty. The faculty representatives should be nominated by the clinical and preclinical councils, respectively. Each nominating group should present a list of nominees, from which the faculty will vote, which shall be twice the number of representatives in each category.

Once formed, the committee would review the existing mechanism of governance at HMS in terms of function, efficiency, representation, and organization; further, it would gather and organize the knowledge, opinions, aspirations, and judgments of widely representative groups of members in the Medical School community to make recommendations about desirable changes. Recommendations would be submitted to the Faculty of Medicine for approval and then forwarded to the Governing Boards of the University.

AFTER 26 YEARS:

INCUMBENT NAMED TO FABYAN CHAIR

The Fabyan Chair in Comparative Pathology, originally established in 1896 by George F. Fabyan in memory of his father, has been filled after a 26-year vacancy. On July 1, 1970, Baruj Benacerraf, M.D., an internationally known immunologist-pathologist, will become Fabyan Professor of Comparative Pathology and head of the department of pathology at Harvard Medical School.

Dr. Benacerraf's research interests cover many areas of immunology and immuno-pathology. He has made significant contributions to an understanding of the mechanisms of both humoral and cellular hypersensitivity reactions and of the pathogenesis of glomerulonephritis and allergic vasculitis. He has also contributed to the demonstration and study of cancer specific antigens.

More recently, Dr. Benacerraf's

MEMORIAL HONORS DONALD D. MATSON '39

In recognition of his contributions to neurosurgery, medical education and research, and to memorialize his unique qualities as a teacher and physician, The Donald D. Matson Memorial has been established at Harvard Medical School.

The endowment will be used annually to select an outstanding teacher to come to HMS as a visiting professor in the neurosciences. During his visit, he will work with residents and students, attend regular conferences, and participate in the ward rounds and clinics at the Children's Hospital Medical Center and Peter Bent Brigham Hospital. He would also deliver The Donald D. Matson Memorial Lecture.

Additionally, the Memorial will be used to underwrite a Traveling Scholarship whenever funds permit. This would be awarded to a neurosurgeon, neurosurgical resident or trainee from any country. The award would permit him to travel to other centers for scholarly pursuit in neurological surgery.

Selection of the Matson Traveling Scholar and the visiting professor

will be made by the Dean of Harvard Medical School and the Franc D. Ingraham Professor of Neurosurgery at HMS.



Dr. Matson

To date, 271 friends, colleagues, and students have contributed \$21,452 to the Matson Memorial.

2ND YEAR STUDENT COORDINATES EARTH DAY

The last issue of the *Bulletin* introduced a new section, "Students." In Howard S. Kirshner's '72 article, "Attending HMS a Political Experience," he wrote: "Perhaps the most noticeable have been the numerous political activities in which members of the class have engaged . . . whether or not they have come to school, in Vice President Agnew's words, 'to proclaim instead of learn,' they certainly do not ignore the issues of their time."

One particular student who refuses to ignore the issues of his time is Andrew C. Garling '72. Andy, an articulate, soft-spoken Hoosier, is a national coordinator of Earth Day, April 22.

The idea for Earth Day began last summer when students and communities decided to do something

about environmental problems. In September Senator Gaylord Nelson proposed a national day of environmental action, and the following month, Congressman Paul McCloskey suggested April 22.

After the initial announcement, the day gathered its own momentum, as groups around the country formulated plans. Coordination was taken over by a student-run national office in Washington, D.C.

Mr. Garling became involved in the ecology issue by what might appear to be a circuitous route, but what in fact is a natural outgrowth of his political thinking.

Last November, he was a coordinator of the Boston Medical Peace Action Committee's Moratorium Day activities. He still serves as one of the directors of MPAC.



Dr. Benacerraf

interests have been concerned with basic mechanisms of immune responsiveness and tolerance. He has contributed to the discovery of immune response genes which control the recognition of specific antigens, and he has been concerned with the processes controlled by these genes in the immune response.

Dr. Benacerraf received the M.D. degree from the Medical College of Virginia in 1945 and is currently Chief of the Laboratory of Immunology at the National Institute of Allergy and Infectious Diseases, National Institutes of Health. He was professor of pathology at New York University School of Medicine from 1960-1968.

Among the professional organizations in which he has membership, Dr. Benacerraf lists the American Association of Immunologists, American Association of Pathologists and Bacteriologists, American Society for Experimental Pathology, Society for Experimental Biology and Medicine, British Association for Immunology, French Society of Biological Chemistry and the New York Academy of Sciences.

He is the fourth incumbent of the Chair, which has been vacant since 1944 when Dr. Rene J. Dubos returned to the Rockefeller Institute after holding the professorship for two years.

In December, he became disheartened with the continuing appropriations to the defense budget.

"Federal priorities, as shown by expenditures, are still heavily concentrated on war and the military," he said. That money and more has been needed at home for a long time. War, poverty, hunger, and environmental destruction are all symptoms of the same disease."

And so, he now devotes virtually all of his time to Environmental Action, Inc., shuttling to and from Washington, coordinating national and local activities. He sees ecology as an issue of the people and most certainly, for the people.

"It is difficult to change an entire pattern of thinking," he declared, "and our task won't be easy."

How **do** you convince a housewife that the detergent she uses is helping to pollute a river 15 miles away? How **do** you alter a pattern of thinking?

Environmental Action, Inc. is attempting to effect the change by organizing group activities whose logical extension will lead to polluters and policies that perpetuate pollution. For example, students and communities are scheduling "Environmental Scavenger Hunts" to track down visible evidence of pollution, and then presenting the Top-Ten Polluter Awards.

"Such activities," Mr. Garling said, "foster a spirit of community that acts as a catalyst for action — and action is what is crucial."

But perhaps most important is the necessity of bringing the environment issue to people on an individual basis. No ecology program can be successful until each person understands that his particular act may cause or contribute to environmental destruction.

It is to this end that Environmental Action, Inc. and Mr. Garling are devoting themselves.

Environmental Action, Inc. is a non-profit organization. Tax-deductible contributions may be sent to Room 200, 2000 P St., N.W., Washington, D.C. 20036.

F.D.A.: YEA OR NAY?

The F.D.A. is plagued by fears
And likes to ruminate for years.
They get no thanks for prompt approvals
But lots of press for drug removals;
And constantly go through the mill
Of those committees on the Hill,
Beset by politicians bent
On bucking for vice-president.
Their necks are always in a noose.
By saying "nay" they keep it loose.
But if they err in saying "yea"
The noose is tightened straight away.
By holding fast their medals won,
"They shall not pass!" — as at Verdun.
Their sign of victory not a "V"
But a thumb directed downwardly.
Now would you be a "yea" or "nay"-sayer
If *you* were an F.D.A.-er?

THOMAS J. VECCHIO '48

LETTERS

ON MORATORIUM PARTICIPATION

To the Editor:

Ever since the arrival of the Nov.-Dec. 1969 *Harvard Medical Alumni Bulletin*, I have refrained from writing this letter. I can no longer do so.

In my opinion, the photograph of Dean Ebert and others participating in a peace demonstration in downtown Boston is the most disgusting, disturbing and disappointing event that has ever been depicted in the

Bulletin. Surely a man of his stature and his position should offer more enlightened and intelligent leadership. Is it any wonder that immature students protest, violate the law and participate in campus riots with such an example set for them by the Dean of Harvard Medical School? I am sure many other graduates of HMS must feel as I do.

FRANK E. FOWLER '23

ORGANO-CHLORIDE INSECTICIDE THREAT

To the Editor:

Recently there has been a great concern expressed both by public officials and in the press about the effect of the organo-chloride insecticides on the environment, but at the same time, a denial that they have any effect on human health. If they do have a harmful effect on humans, the action is difficult to

prove because of the subtlety of their action, and because the chemicals become sequestered in the body. Experiments with mice and other animals will never be conclusive. However, I suggest that injurious physiological effects of these chemicals, if they are produced, will only be established by a prolonged study of the correlation between morbid symptoms and organochloride concentra-

tions in biopsy materials and tissues excised during surgery.

Such a study would be very valuable to an understanding of the effect of these non-biodegradable substances on human health and life. The study would entail the enlistment of many surgeons in a cooperative effort involving the sending of specimens for analysis to a central

laboratory, financed by a foundation or a medical school.

I think it is only the better part of wisdom for people to try to find out just what they are doing to themselves, and to the environment by the careless and thoughtless dissemination throughout the world of noxious chemicals.

ELIOT F. PORTER '29

ALUMNUS QUESTIONS Admission Policy

To the Editor:

At a time when the nation reportedly needs more *practicing* doctors of medicine, it is incumbent on us all to examine the policies of our alma mater and the role Harvard Medical School is playing in responding to this need and fulfilling its obligations and responsibilities.

For many years, the Committee on Admission accepted a representative cross section of the collegiate community, stressing the importance of a liberal education in college, exposure to sociology, classics, history, and the like. A knowledge of general and organic chemistry, physics and biology was all that was considered absolutely necessary as a "premedical" background in the sciences. The Committee's intent was to anticipate that a majority of those accepted could be expected to eventually *practice the art* as well as the science of medicine. Accordingly, many students who had majored in foreign languages, history, philosophy, sociology and similar fields of concentration were welcomed as candidates for admission.

Presumably, as a result of this policy of broad selection, the post-medical school activities of the graduated doctors of medicine always revealed a "healthy" status in regard to percentage of those in private practice, part or full-time teaching, research, industrial medicine, public health, etc. This percentage was "healthy" for the school and the nation.

Apparently, the Committee on Admission has changed its policy. Of the applicants accepted, there

is now a higher percentage of those who have majored in the sciences, frequently to such a concentrated degree that some courses previously offered in the curriculum of the Medical School are "old hat" and considered to be a waste of time. The Committee responsible for the curriculum accordingly has allowed students to omit some courses and take electives at M.I.T. and elsewhere. The students are also allowed to omit certain components of what used to be considered a "well-rounded" medical education if they anticipate that their specialized postgraduate activities will not involve a need for exposure to these particular medical subjects.

The percentage of graduates participating in full-time research has risen sharply in the past few years, and, I believe, reflects this change in policy by the Committees on Admission and Curriculum. The percentage of those going into private practice has decreased (with relative increase in the number of psychiatrists).

Certain questions arise:

1. Is Harvard Medical School rapidly becoming a postgraduate school for chemists, biochemists, geneticists, and those engaging in other scientific specialties, and will it become more appropriate to confer the degree of Doctor of Philosophy rather than Doctor of Medicine upon many of its graduating students?

2. In past years, what percentage of those who majored in non-scientific fields in college eventually became *practitioners* in contrast to those who majored in the sciences?

3. Is the attitude of administration and faculty becoming too permissive for the good of all — including the students?

4. Is the school's responsibility primarily to the students and faculty, or to society and the public welfare?

5. Are governmental grants playing too great a role in decisions regarding policy and procedure?

6. Are the opinions and comments of the "silent majority" of alumni solicited or given consideration when presented?

GEORGE E. MACDONALD '45

Dr. MacDonald's letter was referred to Perry J. Culver '41, associate dean of the Faculty of Medicine for admissions, and to Dr. Daniel H. Funkenstein, director, Program for Research in Medical Education, who offer the following replies:

To the Editor:

As chairman of the Committee on Admission and on behalf of this Committee, I should like to emphasize that the policy and intent of the Committee on Admission has not changed. An effort is made to select students with a liberal education and from a wide range of backgrounds. Moreover, an effort is made to select those students who have the art of working with people, a demonstration of interest in service as well as an interest in the science of medicine. Analysis of the change in preparation or interests of each class has shown that these reflect changing interest and preparation in the total pool of applicants to medical schools, and also reflect the rapid and profound change in career goals and attitudes engendered by the forces of society.

To be specific, the absolute number of humanities majors in the pool of students applying to the Harvard Medical School has decreased slightly over the last five years, and with a great increase in the size of the pool, the percentage of non-science majors has dropped from 25 to 16 percent. Correspondingly, the number of non-science majors in the ac-

cepted classes has dropped from 28 to 16 percent. The greater emphasis on mathematics and science in secondary schools since Sputnik has resulted in a much more advanced and scientifically sophisticated applicant throughout the United States. The old pre-med major has all but disappeared from the scene.

As for career goals, during the scientific or molecular biology era that was supported by large funds granted through the NIH, most stu-

dents were attracted to a career of research, teaching, and only a few patients. Again, this was a national phenomenon and not peculiar to HMS. Beginning in 1968, the medical students developed a great social conscience. Most of them now wish to be active in community medicine and all are concerned with the delivery of health care. Although scientifically better prepared, these students, for the moment at least, are turning their backs on science

and are dedicated to the practice of medicine.

In summary, the Admission Committee's policy remains the same — to pick the best possible students in its pool. The preparation and career choices of the students are little affected by the decisions made by the Admission Committee but rather by the forces for change in education and in society.

PERRY J. CULVER '41

To the Editor:

Dr. MacDonald raises some very important issues concerning Harvard's admission policies. It is impossible in this brief space to discuss them in detail, but I would like to present some data on admitted students acquired from our continuing studies of the past 20 years.

During the fifties, the great majority of students admitted to HMS planned to become clinicians in a specialty, doing some clinical research. This I have designated the "Specialty Era."

Beginning with the class that entered in 1959, this changed. As the result of the emphasis on science following the launching of Sputnik, the National Defense Educational Act, the marked increased funding of NIH and NSF, advanced standing in colleges, opportunities to do research in the summers and during the academic year, there occurred a great increase in the number of students admitted who wished to become scientists in academic medicine, spending 30 percent of their time with patients and 70 percent doing basic research. There were, however, still a sizable number of students who wished to become clinicians. At first, this change was a Harvard phenomenon, but by 1965, 38 percent of all interns who had graduated from American medical schools wished careers associated with medical schools. This has been designated by me as the "Scientific Era."

TABLE I
HMS Class of 1973
SEPTEMBER 1969
MATRICULATION

Career Choices	First Choice N = 122	
	#	%
1. Clinical Faculty, Part-Time	33	27%
2. Full-Time Faculty		
a. Clinical	15	12%
b. Basic Sciences	4	4%
Total	19	16%
3. Psychiatry	9	7%
4. Private Specialty Practice	10	8%
5. G.P. or Family Practice	27	22%
6. Biomedical Engineering	7	6%
7. Public Health	17	14%

There was a marked shift in the career plans and the characteristics of the students entering in 1968 and 1969. They were suitable to the "Community Era." The career plans at matriculation of the class which entered in '69 are seen in Table I.

This can be contrasted with the career choices at matriculation of the class which entered in '65 during the Scientific Era. (Table II)

The eventual career that students pursue, as contrasted with their choices at matriculation depends upon many other factors. In our studies, greater weight can be assigned to the needs of society of which funding is one evidence. For example, students entering in one era changed little during medical school if the era of medicine did not change while they were in school. There were few significant changes in the career plans of students between entrance and graduation dur-

TABLE II
HMS Class of 1969

Career Choices	Admission N = 110		Graduation N = 101	
1. Clinical Faculty, Part-Time	32	29%	35	34%
2. Full-Time Faculty	37	33%	18	18%
3. Psychiatry	11	10%	11	11%
4. Private Specialty Practice	6	5%	8	8%
5. G.P. or Family Practice	3	3%	9	9%
6. Biomedical Engineering	1	1%	7	7%
7. Public Health	4	4%	13	13%

ing the Specialty Era, or within the Scientific Era. However, when a class entered during one era, and the era in medicine changed while they were in medical school, they changed to the characteristics of the new era. For example the Class of '62 which entered in the Specialty Era, changed by graduation to the characteristics of the Scientific Era. The Class of '69 which entered in the Scientific Era changed by graduation to the characteristics of the Community Era. (Table II) Based on our data on other classes, if medicine had remained in the Scientific Era, there would have been some increase in those desiring careers as full-time faculty, no-one would have wanted to become a family practitioner, and probably only one would have remained in public health.

Our studies also show that this is not a bias of the Committee but a change in the pool of applicants. There is considerable other evidence of the end of the Scientific Era: the cut in research funds; the large number of Ph.D. students in science now applying to medical school, not to use their science in medicine but to work in the community; and the increase in applicants to graduate programs in urban studies and the social sciences, while the number of

applicants in the sciences is stationary or falling, depending upon the university.

The task for the admission committee is to secure balance within the student body, so that Harvard can supply physicians suited for the diverse needs of society. Unfortunately, our data indicates that when the pendulum swings, it swings too rapidly, and too far. Today there are twin dangers: one is that we will not educate enough scientists and that they will not be able to secure funds to pursue their careers as science funds are cut; the other danger is that the increased numbers wishing to go into public health to deal with the problems of health care delivery will not be adequately funded and that sufficient opportunities for post-medical school training will not open up rapidly enough. There is the further hazard that students of this latter type will not apply in large numbers because many of them are beginning to feel that medicine as currently constituted is irrelevant to the great social issues of our times.

These problems are difficult and complex. At least by compiling data on them, we are not proceeding in the dark.

DANIEL H. FUNKENSTEIN, M.D.

"THOSE WERE THE DAYS . . ."

To the Editor:

An article appeared in *The New England Farmer* of August 9, 1823 blatantly advertising to American farmers (and hopefully their sons) the resources, cost and several advantages of an education at the Harvard Medical School. The greatest and newest advantage was the chance to study at the recently completed Massachusetts General Hospital. There was a core of instruction enlisting the capabilities of Drs. Warren, Gorham, Channing, Bigelow, and Jackson. Upon completion of the core, about the time of the "spring session," electives were offered in related disciplines at the College in Cambridge.

That only 46 operations had been performed at the MGH in almost two years (Sept. 21, 1821 to June 11, 1823) seems short fare for surgical training. The amount of pain endured by the restrained patients cannot be appreciated today. If there was a good result, the fractures treated must have greatly pleased the patient. More grateful would be those restored to sight after cataract removal; most grateful might well be the two men relieved of phymosis.

The *New England Farmer*, a weekly of eight to twenty-four pages, started in 1822, and was published in Boston before the streets were numbered; the mast head reads: "Thomas W. Shepard, Rogers' Build-

ing, Congress Street (Fourth door from State Street)." The editor, Thomas G. Fessenden, chose articles of the history of the potato; the reclamation of wet unproductive meadows; long term feeding of *mangel wurtzel* to a group of pregnant, unwatered and undoubtedly very hardy sheep over a period of several months pre-and post partum; and the turkey with the succinct statement "the turkey-cock is sufficient for six hens." Four excerpts of wry humor bear quoting from the first two issues of 1823.

The first surgical mask: "Contagion: gauze veils, on the principle of Davy's safety lamp, have been recommended by Mr. Bartlett, as preservatives from contagion."

Insomnia: "Cool yourself before you go to bed. Dr. Franklin says he was in the habit of sitting undressed at his window until he felt pleasant, and did not think a person so doing was liable to take cold."

Encouragement of Opium Culture: "At the present session of the British Society for the Encouragement of Arts, Manufactures, and Commerce, a premium of thirty guineas was granted to . . . for preparing one hundred and forty pounds of Opium from poppies raised in England."

The firm's name has been omitted in case present day authorities might wish to prosecute their lineal descendants.

Wens: "How to cure a wen. A gentleman of Baltimore who for fourteen or sixteen years was plagued with a wen on his head for which he could find no cure, happened a short time ago in a frolick (sic) with a young *Irishman* to receive a severe blow directly upon the excrescence, which entirely removed it. The operator is very willing to try his skill in any other case that may be offered."

Even without a cytological diagnosis of wen, the above advice can still be carried out in Boston with its plurality of the desired race, and great availability of a situs frolickii, at any one of Boston's numerous dark dens of salubrious entertainment.

LLOYD E. HAWES '37

